

XXIV.—*A new Madagascar Arctiid.*
By the Hon. WALTER RÖTHSCHILD, Ph.D.

Rhodogastria saalmuelleri, sp. n.

♂. Similar to *baueri*, but smaller, and the ground-colour more pinkish, less yellow. Pectus whitish; legs crimson-scarlet outside, clayish grey-white inside; antennæ chestnut; head and thorax pinkish ligneous buff; palpi scarlet, with black rings; a black dot on frons, one on vertex, one on each tegula, one at base of both patagia, three pairs on thorax; abdomen crimson. Fore wing yellowish pinky ligneous clay-colour; disc hyaline, dusted with clayish scales on basal two-thirds; nervures and discocellular patch of ground-colour of wing, outer edge of vitreous disc narrowly margined with dark brown. Hind wing hyaline, clothed with sparse clay hairs and a brownish discocellular patch.

Length of fore wing 25 mm.

Hab. Morondava, Madagascar; 3 ♂♂.

XXV.—*Notes from the Entomological Department of the London School of Tropical Medicine.*—No. III. *Oriental Species of Stomoxys.* By SOPHIA L. M. SUMMERS, M.A., B.Sc.

A COLLECTION of about three hundred specimens of *Stomoxys* was kindly sent to the London School of Tropical Medicine by Mr. H. C. Pratt from Kuala Lumpur.

There are five species in this collection, but only one of them is new. These flies were no doubt collected indiscriminately, so it is interesting to note the numbers of the different species. The most numerous seem to be *Stomoxys calcitrans*, Linné, and *Stomoxys oblongopunctata*, Brunetti. There are nearly one hundred of each of these. The next in number is *Stomoxys nigra*, Macq.; of these there are over forty. There are about forty specimens of the new species *Stomoxys pratti*, but of *Stomoxys limbata*, Austen, there are only eleven specimens. There are male and female in every species.

The species of *Stomoxys* are difficult to recognize. So much depends on the way the light is shining on them, and they seem to vary so much in the different lights, that it is

difficult to get a suitable basis for a table. In going over this collection I have found that the characters most to be relied on are:—(1) the width of the frons in relation to the width of the head, (2) the width of the median line on the thorax, and (3) the colour of the legs. The abdominal markings can be relied on to a certain extent only. In *Stomoxys calcitrans* the spots on the abdomen may vary considerably, but the species can be easily recognized by the broad frons, the narrow stripe on the thorax, and the black legs.

Since the determination of the species depends to a large extent on the breadth of the front and of the median stripe on the thorax, it is imperative to get exact measurements. I find that I can get these measurements exactly by making a camera lucida tracing of the head and thorax of the specimen, using a two-inch lens, and then measuring the drawing. The measurements of the front in this paper are taken at the vertex. The colouring of the face is not constant, and therefore cannot be used as a definite character. In some species the colour of the tibiæ may vary; e. g., in *Stomoxys nigra* I have found four with quite brown tibiæ (in the second pair of legs). These four agree with the type of *St. nigra* in every other respect, and the light colour of the tibiæ of the second pair of legs is not sufficient to make a new species of these specimens. Besides, Grünberg, in his description of *Stomoxys glauca*, which has since been shown to be a synonym of *Stomoxys nigra*, Macq. (Austen), remarks that sometimes the tibiæ are quite brown (Grün. 1907, 'Die blutsaugenden Dipteren').

In his revision of the Oriental blood-sucking Muscidae (Records of Ind. Mus. vol. iv. no. iv. 1910) Mr. Brunetti gives a table of the Oriental species of *Stomoxys*, but I find he does not include *Stomoxys nigra*.

The following table is drawn up according to the characters aforementioned:—

Table of Oriental Species of Stomoxys.

- | | | |
|-----------------------|---|--------------------|
| A. | Legs mainly black | 1. |
| B. | Legs mainly brown | 2. |
| 1. Legs mainly black. | | |
| 1. | Front in ♂ wide, $\frac{1}{4}$ or $\frac{1}{2}$ width of head | 3. |
| | Front in ♂ narrow, $\frac{1}{3}$ or less width of head. | |
| | Abdomen with round spots | siliens, Rond., ♂. |
| 3. | Dorsal stripe on thorax narrow (3-5 mm.) at anterior end, widening towards the posterior end. Abdomen spotted | 4. |

Dorsal stripe on thorax wide ($\frac{7}{10}$ mm.), uniform in width. Abdomen banded. *nigra*, Macq.

4. Spots round..... *calcitrans*, Linné.
 Spots triangular, apex pointing edge of segment *triangularis*, Brunetti.
 Spots elongate..... *oblongopunctata*, Brunetti.

2. Legs mainly brown.

2. Front wide, $\frac{1}{4}$ or $\frac{1}{2}$ width of head 5.
 Front narrow, $\frac{1}{4}$ to $\frac{1}{2}$ width of head 6.
 5. Abdomen distinctly banded 7.
 Abdomen blotchy. Dark species. Fore tarsus in ♂ with first joint fringed on the inside with a row of hairs of equal length. (♀ unknown)..... *pulla*, Austen.
 7. Hind border of first three abdominal segments with black band. Femora clove-brown, hind tibiæ ochraceous buff, front and middle tibiæ and tarsi mummy-brown. Width of front $\frac{1}{2}$ in ♂, almost $\frac{1}{3}$ in ♀. Front in ♂ constricted in the middle *limbata*, Austen.
 Dorsum of second abdominal segment entirely clove-brown, deep posterior transverse band on third segment. Front and middle tarsi pale brown, width of front wider than $\frac{1}{4}$ width of head *pusilla*, Austen.
 6. Front $\frac{1}{4}$ in ♂, more than $\frac{1}{3}$ in ♀. Femora dark brown, tibiæ and tarsi very pale yellow. Abdomen seen from behind at a very low level is banded..... *pratti*, sp. n.
 Front $\frac{1}{3}$ in ♂. Interocular space very straight. Legs testaceous; coxæ black, femora brownish, anterior ones lighter on inner side, darker on outer side. Abdomen banded *indica*, Pic.

Mr. Brunetti includes *Stomoxys plurinotata*, Bigot, *Stomoxys daenusa*, Speis., and *Stomoxys bengalensis* in his table, but I have omitted them. He gives as the differences between *St. plurinotata*, Bigot, and *St. calcitrans*, Linné, the following:—"Thorax with 4 oblong large spots, each more or less divided. Width of frons (*presumably*) neither $\frac{1}{4}$ nor $\frac{1}{2}$ as sex is doubtful." Bigot, in his description of the species, said that sometimes these four spots appeared as four longitudinal stripes. In these cases, there being no measurements given, it could not definitely be said to differ from *St. calcitrans*, so it is probably safer to leave it out of the table. *Stomoxys daenusa* Speis., requires, I think, a fuller description before it can be placed in a table. This species was founded on a damaged female specimen. *St. bengalensis*,

Pic., is probably a synonym of *St. nigra*, Macq.; its description corresponds to the type of *St. nigra*, and also with Grünberg's description of *St. glauca* (synonym of *St. nigra*, Macq. (Austen)).

The flies of this genus are medium-sized. The largest species in this collection is *Stomoxys nigra*, which measures 7.5 mm.; the smallest species is *Stomoxys limbata*, measuring a little under 5 mm.

Geographical distribution.—*Stomoxys calcitrans* has a very wide distribution; it is found wherever mankind is. It is so variable that it has been described at least twenty-one times as a new species. *Stomoxys sitiens*, Ron., is a doubtful Oriental species (*Brunetti*); Rondani reported it from Abyssinia. *Stomoxys nigra* has been found in Port Natal (*Macq.*), Cameroons and Togo (*Grünberg*). *Stomoxys triangularis* from South India (*Brunetti*). *Stomoxys oblongopunctata* from Assam (*Brunetti*). *Stomoxys pulla* is reported from India (*Austen*). *Stomoxys limbata* from India, Assam, and Ceylon. *Stomoxys pusilla* is also from India, while *Stomoxys indica* has been met with in India, Assam, and Ceylon.

Stomoxys pratti, sp. n.

♂. Length almost 7 mm.; width of front narrow, $\frac{1}{6}$ width of the head. Width of median stripe on the thorax .5 mm. Front not straight.

Rather a dark species. The front is very little wider than the frontal stripe. The face and antennæ are greyish brown.

Thorax has the usual longitudinal stripes in front of the transverse suture, and, if viewed from behind at a low angle, they can be traced to the middle of the thorax. They can be seen still more distinctly if the head is turned away from the light.

Abdomen viewed from above is dark brown; from behind at a low angle the last segment is grey, while the other segments have broad posterior bands.

Legs. The femora are cinnamon-brown, the tibiæ and tarsi are a pale brownish yellow.

Wings are dirty brown.

♀. Length 6 mm.; width of front $\frac{1}{3}$ the width of the head. Similar to the male, except that the tibiæ and tarsi of the legs are a very pale yellow and the femora of the last pair are black-brown.

This species is near *St. brunnipes* (an African species, Grünberg, 1906, Zool. Anz. Bd. xxx. p. 89), but differs in

the following points:—In the male of *St. brunnipes* the width of the front is narrower than in *St. pratti*, being only $\frac{1}{3}$ width of head, while *St. pratti* is $\frac{1}{6}$; the antennæ are black, but in *St. pratti* they are greyish brown. The black stripes on the thorax converge in front of the transverse suture, whereas in the new species they are parallel. The coxæ, trochanters, and femora are black in *Stomoxys brunnipes*, but are cinnamon-brown in *Stomoxys pratti*.

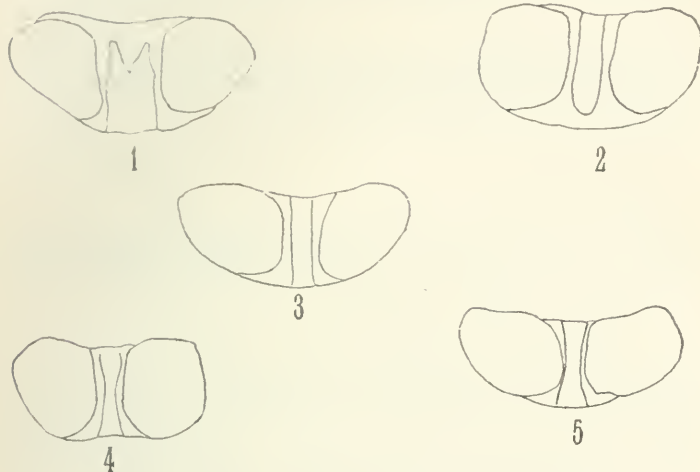


Fig. 1.—*Stomoxys calcitrans*, Linné. Head of male.
 Fig. 2.—*S. oblongopunctata*, Brun. " "
 Fig. 3.—*S. nigra*, Macq. " "
 Fig. 4.—*S. limbata*, Austen. " "
 Fig. 5.—*S. pratti*, sp. n. " "

In the female of *Stomoxys brunnipes* the broad black stripes on the thorax are nearly confluent. The abdomen is a shiny black, and when viewed from behind spots become visible on the second and third segments; in *Stomoxys pratti* the abdomen is dark brown and when viewed from behind is banded. Coxæ, trochanters, and femora are black, whereas in *Stomoxys pratti* they are light brown, except the last pair, which are dark brown.

It is also near *Stomoxys teniatus* (Bigot, 1887, Bull. Soc. Zool. Fr.), but *Stomoxys teniatus* is much larger, being $7\frac{1}{2}$ mm. in length. The front of the male of *Stomoxys teniatus* is wider than that of *Stomoxys pratti*, and the legs are all a uniform pale yellow.

The types have been presented to the British Museum.

Literature dealing with Oriental Species of Stomoxys.

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 PICARD. 1908. Bull. Soc. Ent. Fr. p. 20.
 AUSTEN. 1909. Ann. & Mag. Nat. Hist. (8) iii. p. 292.
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My best thanks are due to Lt.-Col. Alcock, I.M.S., F.R.S., C.I.E., &c., and Mr. Austen, of the British Museum, for their great help in preparing this paper.

XXVI.—*Remarks on the Classification of the Culicidæ, with particular reference to the Constitution of the Genus Anopheles.* By A. ALCOCK, C.I.E., M.B., LL.D., F.R.S., Lt.-Colonel I.M.S. (retired).

BEFORE the great discovery of Ross attracted attention to mosquitoes no one questioned the propriety of grouping the Culicidæ in two subfamilies—namely, (1) Corethrinæ, in which the proboscis is short and soft and the veins of the wings are clothed with ordinary hairs; and (2) Culicinæ, in which the proboscis is long and stiff (and the mouth-parts in the female are formed for piercing) and the veins of the wings are clothed with scales.

Some recent writers, however, ignoring all the common features that distinguish these two groups from other Nematoceros Diptera, and exaggerating the importance of the functionally different mouth-parts of the female Culicinæ, have cut the Corethrinæ adrift, and have given the exclusive possession of the common family title to the Culicinæ. Such a proceeding seems to me to defeat the humane objects of a zoological classification, which are to draw tight and to knit together the morphological bonds that should unite diversely modified relatives. Even when the most is made of the difference between the larva of *Culex* and the larva of *Corethra*, there still remains the fact that the larva of *Mochlonyx* (whose adult is indisputably Corethrine) possesses the structural peculiarities of the larva both of *Corethra* and of *Culex*, besides exhibiting, in its four clypeal bristles, one of the peculiarities of the larva of *Anopheles*.